Arbtech Consulting Ltd
European protected species licence application to Natural England
November 2012
Brookbottom Methodist Church, New Mills.

Mitigation Licence Application for Bats

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Document 1 Background and Supporting Information

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A. Executive Summary

Brookbottom, Methodist Church, New Mills (The Church) has been granted planning permission to extend and renovate the current building.

Ecological surveys of the site identified that bats had been using the building to roost in. The surveys found that the roost was situated in the building. A small number of bats, ten in total (seen on the scoping survey, clustered together) with between 5-9 bats emerging, were found to be using the building. As these were brown long eared bats (BLEB's) it is likely that this is a maternity roost.

Brown long eared bats could be disturbed, injured or killed whilst works are undertaken. The roost will be lost in the building, due to the renovation works required to convert to a dwelling. The roost will be compensated for its loss by creating a bat loft in the dwelling of similar size and aspect.

The impact on the populations and individual bats of the above species and within the surrounding habitat and region is considered to be of high conservation significance, without appropriate mitigation.

B Introduction

B1. Background to Activity/Development

The Church is currently an unoccupied former church building which ceased to be used in 2009 and has been granted planning permission HPK/2012/0481. The buildings will be renovated and extended to create a new dwelling.

A scoping bat survey was undertaken on the 6th July 2012 on request of the client to establish if bats were using the building for roosting. Evidence was found of bat droppings of those resembling brown long eared bats (BLEB) *Plecotus auritus* internally in the building. Further to this a cluster of 10 BLEBs were located hanging on the ridge of the church roof. No evidence of bats was located on the exterior of the building.

Three emerge/re-entry surveys were undertaken as follows:

6th July 2012 (Scoping)

10th and 11th July 2012 (dusk/dawn)

24th and 25th July 2012 (dusk/dawn)

6th and 7th August 2012 (dusk/dawn)

At least five species of bats were recorded at the site: common pipistrelle bats (Pipistrellus pipistrellus), soprano pipistrelle bats (Pipistrellus pygmaeus), noctule bats (Nyctalus noctula), Myotis bats (Myotis spp.) and brown long---eared bats (Plecotus auritus).BLEB's were the only species of bat recorded roosting.

B2. Full details of proposed works on site that are to be covered by the licence

The licence is required for the extension and renovation of the building. The work is part of the redevelopment of the site described above and planning has been granted.

C. Survey and Site Assessment

C1 Pre-existing information on the bat species at the survey site

No previous records on the site existed before the scoping bat survey was undertaken.

12 records of five species are held (biological records centre) within 5km of the site, neither local bat group held any records of bats at the site.

C2 Status of bat species

Brown long eared bat (Plecotus auritus)

This species is common and widespread, found throughout Derbyshire and the UK. This species appears to be the third most common of our bat species with an estimated UK population of 200,000. It is often overlooked thus this is a conservative estimate of the population size.

C3 Objectives of survey

To examine the buildings at the site, to determine the presence or likely absence of bats and to advise on any necessary bat mitigation and compensation measures. The results of the survey have been recorded and an assessment of the likely impacts for the proposed work has been made. The survey results have been used to propose a compensation and mitigation strategy to be able to undertake the proposed works with minimal disturbance to bats and ensuring the status of bat species on site is protected and maintained.

C4 Plan/map of survey

The Church lies close to New Mills (High Peak) in Derbyshire at grid reference SJ986865 or nearest postcode SK22 3AY (see Figures 1 and 2).

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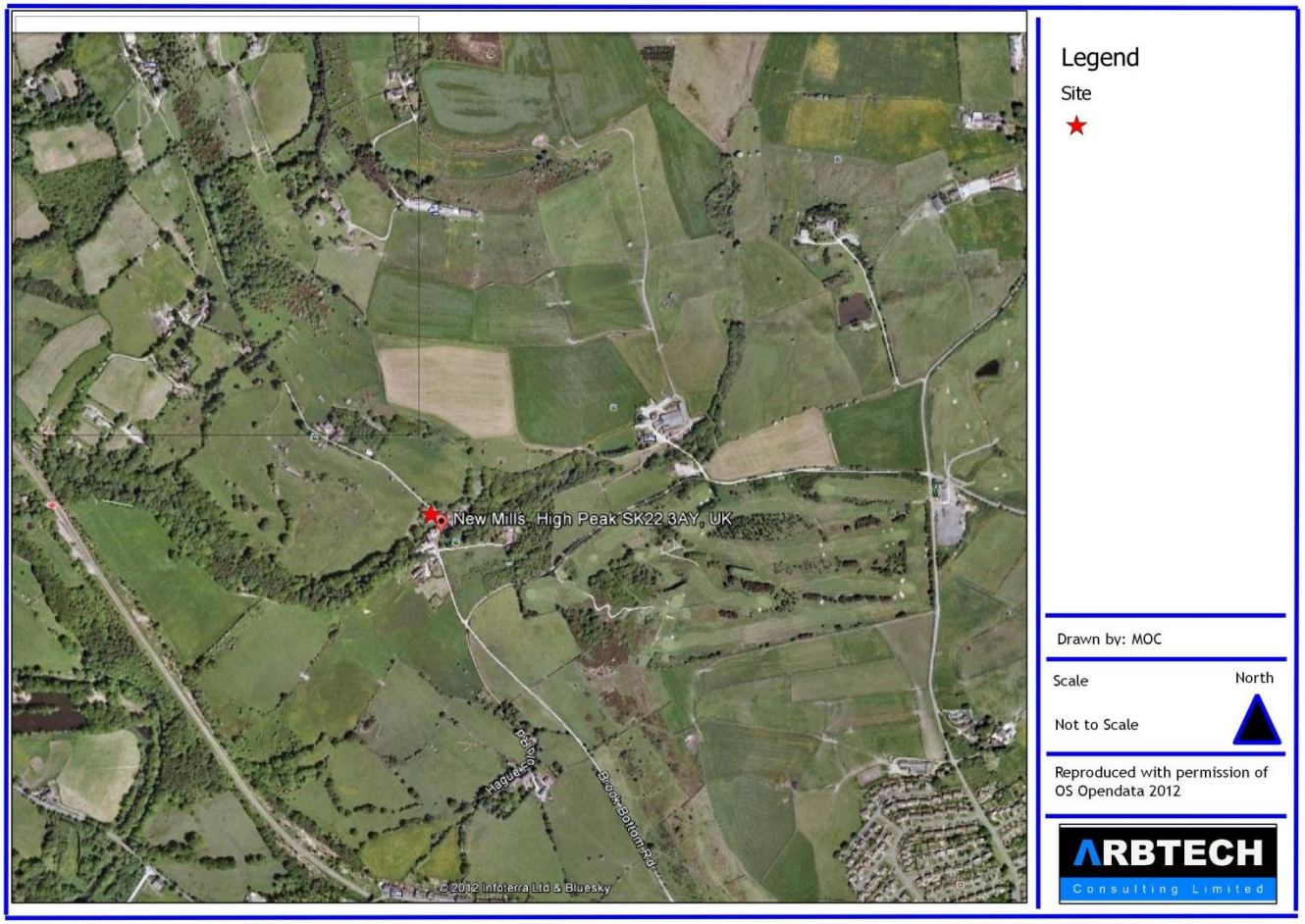

Figure 1 Site location in Derbyshire.

Figure 2: Site plan showing building surveyed and surveyor positions

C5 Site/Habitat description

The church was built in the 1870s. It is built of stone and the roof has slate tiles. A vestry and a small outhouse of the same materials were added subsequently. The west wall of the vestry is partly brick and rendered, other external walls are bare stone and pointed with cement. Church walls are approximately 50cm thick and composed of a double skin filled with stone debris. There are flush eaves and fascia boards masking the top of the wall caps. The roof is of king post truss design with heavy underpurlin beams.

There are chimneys at the western gable ends and a stone cap and finial on the verge of the eastern gable end. There are recessed wooden slatted windows in east and west gable ends. There is attic space above the vestry and above the western part of the church. There is a car park of hard standing material to the north of the buildings bordered by tree lines running north---south and east---west. Most of the trees are outside the site boundary. A narrow passage of hard standing to the north of the building is bordered by a retaining wall to a neighbouring garden at lower elevation and a west---flowing brook. It was noted that there was no Japanese knotweed growing on the site. However a large clump of knotweed is growing close to the property on the opposite side of the road. Strong riverine treelines connect the site directly with the River Goyt and associated woodland and waterbodies approx1km to the west. Excellent habitat also exists to the east (New Mills and Peak District National Park) and all habitat adjacent to the site is suitable for bat foraging for at least1km in all directions.

Plate 1: The church

C6 Field Surveys

C6.1 Methods

A daylight survey was conducted in July 2012. This survey was conducted to national standards were the internal and external areas were searched for evidence of bats. An interior search was conducted and an external examination looking for droppings and potential access points for bats to be using. Evidence of bats was found internally, with approx. 10 BLEB's found clustered on the ridge.

Three emerge/re-entry surveys were undertaken as follows:

6th July 2012 (scoping)

10th and 11th July 2012 (dusk/dawn)

24th and 25th July 2012 (dusk/dawn)

6th and 7th August 2012 (dusk/dawn)

The surveys commenced 15 minutes before sunset and 2 hours before dawn.

These surveys concentrated around the main building were evidence of bats had been found on the daylight inspection. Three surveyors were used for each survey.

The following equipment was used for bat surveys at the site:

Night Vision Equipment Sony HDR---SR11 video camera with nightvision facility.

Yukon Ranger5 x42 night vision scope NV28041 and recorder.

Bat Detectors2 x ultrasound recorders (Dodotronic Ultramic200 /250 and netbooks) 4x heterodyne bat detectors (Pettersson D240X, Ciel CBD101R2, 2 x Magenta Bat4) 1x Time Expansion bat detector (Pettersson D240X)

Other Equipment

VO Scope VO3610WW Endoscope Torches with red filters

C6.2 Timing/Weather conditions

Table 1: Survey data (weather)

Date	Activity	From	To	Temperature	Humidity	Wind	Cloud	Rain	Light
July 6, 2012	Bat Roost Potential Survey	4:45 PM	7:30 PM	About 19oC	Not available	Not available	Not available	Not available	Daylight
July 10, 2012	Roost and Activity Surveys	8:45 PM	6:00 AM	Minimum >12oC	Not available	Intermittent breeze	100% cover	Intermittent light drizzle	No moon, dark
July 24, 2012	Roost and Activity Surveys	8:45 PM	6:00 AM	Minimum >12oC	Not available	Mainly still	Light, scattered	Dry	Waxing crescent
August 5, 2012	Roost and Activity Surveys	8:30 PM	6:00 AM	Minimum >12oC	Not available	Still	Light, thin, moon shines through	Very light drizzle approx 2-3am	Waning gibbous

C6.3 Personal

All the surveys were conducted and organized by a current Natural England Licenced bat workers at MAMPAM Conservation:

Daniel Bennet BSc (Hons) PhD

Malcolm Goth BA (Hons) RNLD

Patricia Tabasusres

C7 Survey Results

C7.1 Daylight inspection

The survey of the buildings identified evidence of bats in the building and it was considered to provide potential roosting opportunities. Further to this a cluster of 10 BLEB's were found on the refaters of the roof.

C7.2 Dusk and Dawn Surveys

Activity Survey

At least five species of bats were recorded at the site: common pipistrelle bats (*Pipistrellus pipistrellus*), soprano pipistrelle bats (*Pipistrellus pygmaeus*), noctule

bats (*Nyctalus noctula*), *Myotis* bats (*Myotis spp.*) and brown long-eared bats (*Plecotus auritus*).

Noctule bats

Nyctalus bats with echolocation calls containing peak frequencies between 19 and 25kHz were recorded feeding and commuting over the site on all nights of the survey (Figure 24). Two observations estimated flying heights as above 20m. Two species of *Nyctalus* are known from the High Peak; noctule bats and Leisler's bat (Bennett et al, 2012). Noctule bats are most commonly reported, and in the absence of further information the bats recorded at Brookbottom are presumed to belong to that species. The earliest record of noctule bats at the site was at 21:54 (58 minutes after sunset). Last record was 05:18. Calls of noctule bats were the least frequently recorded bat sounds at the site.

Common pipistrelle bat

Common pipistrelle bats were the most commonly recorded bats in echolocation surveys. They were observed foraging around and commuting through the site, and social calls were recorded (Figure 25). On two nights of the survey they were first observed flying from the area south of the site at six and nine minutes after sunset, indicating the presence of a nearby roost. Within the site foraging occurred mainly around dusk and dawn and was mainly concentrated in the car park area and treeline at the northern and eastern boundary of the site. Foraging was also recorded along the stream, along all treelines, along the road, and in fields and gardens close to the site. At least two well defined commuting routes were observed within the site, which were used by bats to access habitats to the north of the site (Figure 23).

Soprano pipistrelle bat

Soprano pipistrelle bats were recorded on all nights of the survey, foraging, commuting through the site and making social calls (Figure 26). The earliest calls noted were about 15 minutes after sunset, suggesting that there is a roost nearby. Field observations were often unable to distinguish between soprano and common pipistrelle activity, consequently activity of both species is given in Figure 23.

Brown long-eared bat

Brown long eared bats were the only species of bat recorded within the building (Figure 27) and were regularly recorded around the building (Figure 28). Activity of brown long-eared bats on the site was concentrated around two roost access points on the northern and western sides of the church (Figure 22). They were also seen to forage around the site and commute in all directions. Long-eared bats emerged from their roosts at least an hour after sunset and were observed foraging above the garden to the south of the site and around treelines to the southwest of the site on all nights of the survey. This activity was intermittent throughout the night. Long-eared bats were observed commuting from the site into tree lines to the west and east of the site on all nights of the survey. Because the vestry roof access hatch was left open during surveys, bats

were able to enter the vestry and were observed chasing moths in illuminated rooms.

***Myotis* bats**

Traces of *Myotis* bat calls were heard in the area immediately south of the site boundary with heterodyne bat detectors on the evenings of July 24th and August 5th 2012 between 2200 and 0000 hrs. The bats were not seen and were not recorded by any devices. Extensive *Myotis* activity is expected in the wooded and riparian habitats to the west of the site. At least three species of *Myotis* bats are likely to occur in the New Mills area. All have very similar echolocation calls that are very difficult to distinguish. Recent discoveries about *Myotis* distribution in the UK (Jan *et al.* 2010) make identification of all *Myotis* bats except *Myotis daubentonii* highly problematic without capturing the animals.

Table 2: Summary of survey results

Date	Survey	Results
6th July 2012	scoping	Approx. 10 BLEB's clustered on the ridge beam
10 -11th July 2012	Dusk/dawn	3 bats on ridge, 2 seen flying through vestry 3 BLEB's noted on the camera
24-25th July 2012	Dusk/dawn	4 BLEBs seen along ridge. 4 BLEBs shot on the camera. 7 seen
6-7th August 2012	Dusk/dawn	6 BLEBs seen with night vision. 6 BLEB's seen on the camera.

Table 3: Summary of bat evidence

Building /Tree	Potential	Actual status	Unknown
B1	Medium - High	BLEB bats emerged from the building and seen on the ridge. Between 5- 9 seen to emerge, highest count at any one time = approx. 10. The roost is likely to be maternity roost for BLEB's.	Unknown if used for hibernation

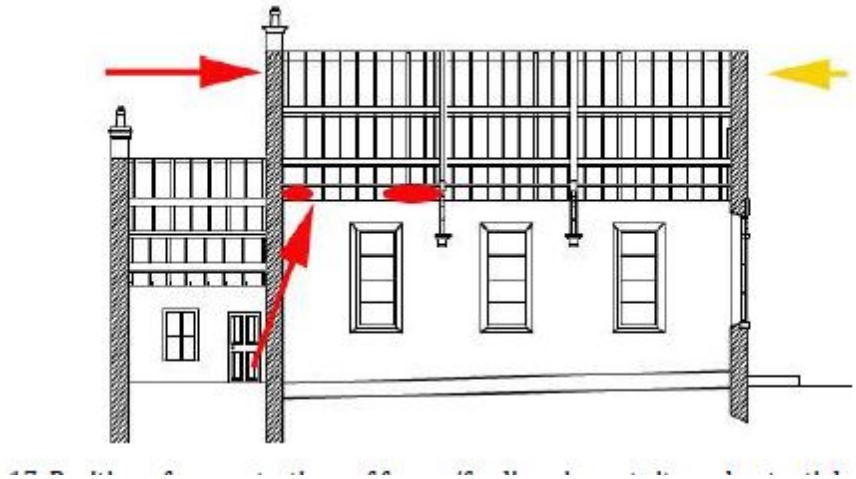

Figure 3: Emergence locations in Building B1

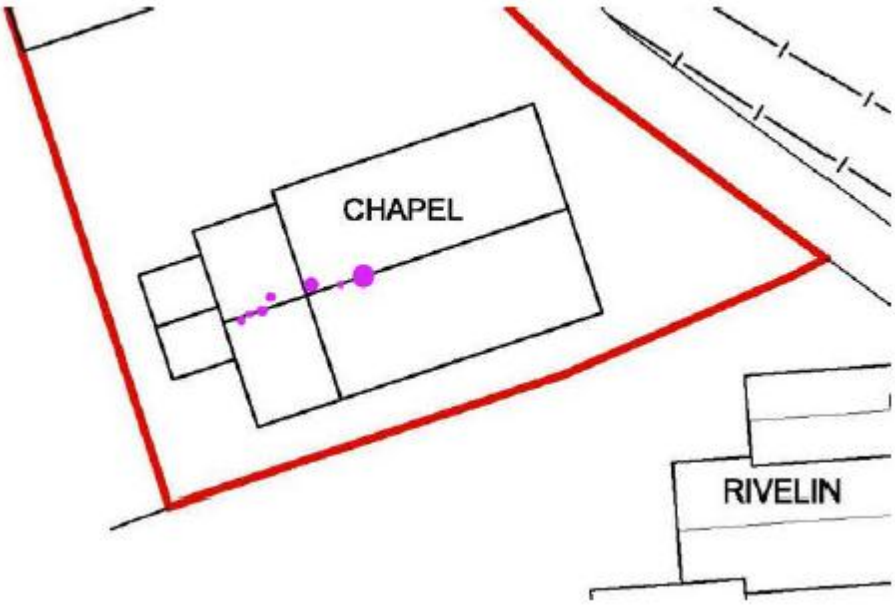

Figure 4: Perching areas

Figure 5: Entry points, green confirmed, brown possible

Brown long eared bats were found to be roosting in the building. A maximum of approx. 10 individuals were seen at any one time.

C8 Interpretation/evaluation of survey results

C8.1 Estimated Population

The largest count of BLEB was 10, seen in a cluster on the ridge, emergence from the roost on the dusk surveys resulted in 5-9 being seen at any time one.

C8.2 Status of Roost

It is concluded that the roost is likely to be a BLEB maternity colony. Extensive research to confirm this has been undertaken including consulting the following:

- Altringham. J, British Bats, Collins New Naturalist, 2003 (print on demand)
- Altringham. J, et al, Sex and segregation in temperate bats, Royal Society, 2005
- Entwistle. A. C, et al, Roost selection by BLE bats *Plecotus auritus*, Journal of Applied Ecology, (34) 1997
- Cornes. B, pers comm., 2010

All the above suggest that in Britain all BLE bats maternity/nursery roosts consist of or exceed 10 individuals, sexual segregation in BLE bats is far less than in other species of British bats.

C8.3 Survey Constraints

There were no constraints to the survey.

D Impact assessment in absence of mitigation

D1 Short-term impacts: disturbance

Disturbance is likely to occur when the building is re-developed and extended, as well as when the building work is ongoing. This could lead to damage, death or encasement.

D2 Long-term impacts: roost modification

There will no modification to the roost in the long term.

D3 Long-term impacts: Roost Loss

The current roost will be lost.

D4 Long-term Impacts: Fragmentation and isolation

Fragmentation or isolation of bat roosting sites is likely as a result of the development on site. The trees are to remain and new roosting opportunities in the form of bat loft have already been supplied, further boxes are to be installed.

D5 Post development interference impacts

It is possible that human activity will contribute to disturbance of the roost when the building has been development. This however is unlikely as there will be an alternative roost provided, additional lighting will be on PIR sensors and will not be directed at the new roosting sites or enhancements.

D6 Predicted scale of impact

The predicted scale of impact on the populations and individuals, in Derbyshire and the region is of high conservation significance, without the appropriate mitigation.

E References

Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature

Mitchell-Jones, A.J & McLeish, A.P eds (1999). The Bat Workers Manual 3rd Edition. JNCC

F Annexes

Bat Scoping and Emergence Survey, MAMPAM Conservation

Document 2 – Delivery Information

A Mitigation and Compensation

A1 Summary of Mitigation Strategy

The roof of the building will be removed by hand under ecological supervision.

During suitable weather conditions before the roof is removed, any bats will be removed were possible by hand and placed in the bat loft (seeded with droppings from the current loft) that will be built prior to the roof removal and internal works. Bat boxes will also be erected on the walls of the building. The current entrance point will be removed from its current location and installed into the bat loft, facing the same orientation.

All contractors and those involved with the work will be informed of any action that must be taken should bats be encountered at any stage. Work will stop and further advice sought if the roost is larger than surveys indicate.

Replacement bat roosting is to be provided in the form of bat boxes and a bat loft. Four boxes will be placed on the current building.

These boxes and the bat loft will be checked a minimum of three times over three years. Monitoring of the loft will include infra-red cameras and ultrasonic microphones via USB links to the house.

B Works to be Undertaken by the Ecologist or Experienced Person

B1 Capture and Exclusion

Before works commence the Ecologist will check all accessible likely roost locations in the building, these include the loft space. The Ecologist will remove the bats by hand (where possible) and without harming them, they will be placed in a suitable bat box located as close as possible to the works area.

A bat loft has been designed, this will be incorporated into the extension (garden room) of the building which is to be constructed prior to the renovation. The bat loft will be 2.3m deep, 5.0m wide and 3m long, which is comparable with the current roost. The current access point from the main building will be removed and installed into the gable of the extension mimicking the current access as closely as possible see C1.4 maps/plans. This loft will be seeded with any bat droppings found during the renovations.

All construction staff will be brief on the procedure to follow should a bat be found whilst the renovation occurs.

The Ecologist will be present when the roof tiles are stripped. Whilst this structure is demolished by hand any bats found will be safely relocated to a suitable bat box/loft which is already in place. These measures will be located as close as possible to the existing building.

Any bats accidentally harmed will be safely put in a suitable container (vivarium) and passed to the local bat group carer, until at which time the bat can be re-released at the roost site.

These works will commence once there is written approval from the LPA and the licence is issued, during the months (November - March), surveys have indicated that it is highly unlikely to be used as a hibernation roost.

C Works to be Undertaken by the Developer

C1 Bat Roosts

C1.1 *In Situ* Retention of Roosts

The existing bat roost in the building will be lost.

C1.2 Modification of Existing Roost

There will be no modification to the current roost.

C1.3 New Roost Creation

Bat Boxes

Four Schwegler type 1FD bat boxes have been installed in February 2012. These will be placed on the current building exterior which is suitable for this propose. These boxes are known to be used by male/breeding female BLE bats from bat box projects across the country.

Bat Loft

A purpose built bat loft will be located in the main building once developed. The bat loft will measure:

- Ceiling to apex = 2.3m
- Width = 5.0m
- Length = 3m
- Overall volume approx. 30m^2

The above is comparable with the current loft space that the bats are using.

The loft will have one entrance, that which is currently used in the main building, this will be carefully removed and built into the extension.

The new loft will be constructed of materials similar to that currently used in the building, a traditional felt will line the loft and tiles will be over laid.

Temperature and humidity data has been collected for the current loft and in order to maximize the use of the new loft heat mats will be installed and controlled to match the current temperature and humidity. At the time of writing this data had not been collated, but will be available once the loft has been built.

It will be in the interests of the owner to maintain this as the loft is in the main house.

Further roosting opportunities within the loft will be provided for crevice dwelling species, this will be in the form of mortar gaps created in the block work.

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C1.4 Plans/Maps

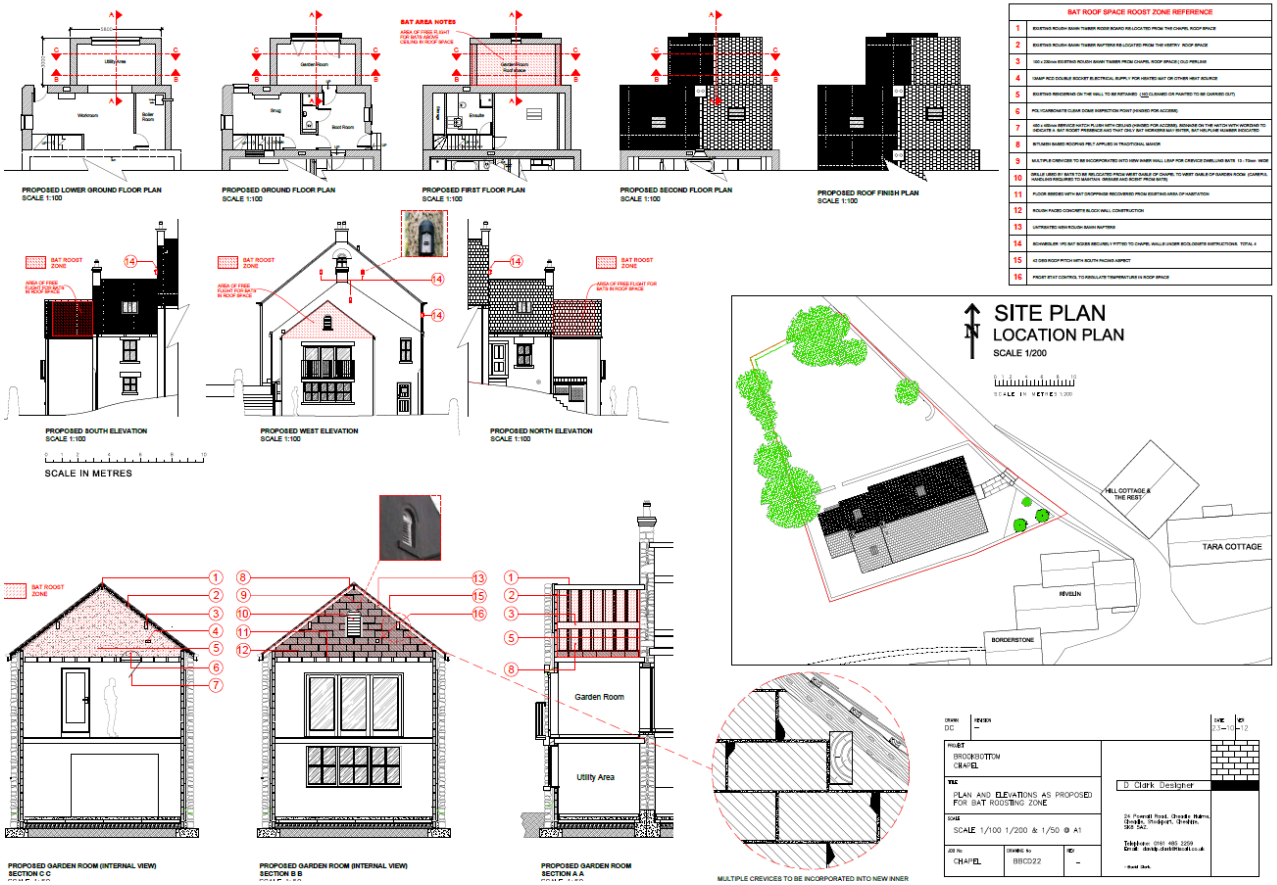

Figure 1: Proposed bat loft (Plan appended as a PDF for clearer reading)

D Post-development Site Safeguard

D1 Habitat/Site Management and Maintenance

The new bat boxes provided will require minimum maintenance due to the longevity of the boxes construction. When the boxes and loft are checked this will require a licenced bat worker.

The loft provided will create a purpose built bat habitat, it is in the interests of the owner to maintain this area.

No permanent lighting will illuminate any created or current roost entrance.

It is the owner's responsibility to purchase and install the suggested mitigation and maintain these.

D2 Population Monitoring, Roost Usage etc.

The boxes and loft should be checked once at the end of the first summer (September-October) after development by a licenced bat worker. This can be carried out during daylight hours and will require the use of a ladder to reach the boxes/tubes, the loft can be checked via the hatch.

The boxes/loft will be checked for a further two years (minimum once a year) in August thereafter.

It is understood that the owners are willing to install IR cameras and microphones to monitor the loft, via USB and computer in the house.

D3 Mechanism for Ensuring Delivery of Post-development works

The Natural England licence will facilitate the measures are carried out and a report of works will be carried out in the licence return.

E Land Ownership – Mitigation Site

The mitigation site is owned by the developer.

E1 Declaration Statements

E1. Mitigation Site Ownership

Mr. and Mrs. D Clark

126 Woburn drive hale

Altrincham

Cheshire

WA15 8NF

E1.1

Not Applicable

E1.2

Not Applicable

E1.3

Not Applicable

F Timetable of Works

A Development Activates and Timing

A: Development activities and timing		
Activity	**Timing**	**Notes**
Start and completion of garden room and bat loft extension to chapel	January- March	All work to be completed in strict accordance with plan BBCD22 (as above)
Start and completion of the re-roofing of the main chapel and vestry roofs	January - March	Replacement of rotten purlins, removal and replacement of existing slate tiles to be completed by hand with the ecologists supervision
Refurbishment of main chapel and Vestry	March - September	No access by workers to bat loft after March

B Post Development Monitoring

B: Post development monitoring						
Year	August 2013	August 2014	August 2015			
Details	Files from IR camera sent to ecologist for checking. Single physical check of the loft, combined with emergence survey.	As previous	As previous			

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